

Message Text

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TO USMISSION OECD PARIS

C O N F I D E N T I A L STATE 065533

EXCON

E.O. 11652: XGDS-1

TAGS: ESTC, COCOM, US, UR

SUBJECT: US VIDICON TUBES TO USSR - IL 1555

REF: A. OECD PARIS 6832; B. STATE 52702; C. OECD PARIS 7150

1. FOLLOWING INFORMATION SUPPLIED IN RESPONSE TO FRENCH DEL
QUESTIONS PARA 1 REF A. ANSWERS KEYED TO LETTERED SUBPARAS.

A. REF B INTENDED TO INDICATE TUBE NOT SPECIALLY RUGGEDIZED
FOR SPARE APPLICATIONS. CAMERA SYSTEM WAS PACKED IN FOAM-
FILLED CONTAINER TO INSURE PROTECTION AGAINST LAUNCH EN-
VIRONMENT.

B. SPECIAL 16 MM FOCAL LENGTH LENS MANUFACTURED BY FRENCH
FIRM ANGENIEUX USED IN US CAMERA SYSTEM.

C. BALANCED SPECTRAL RESPONSE IN US CAMERA DESIGN IS ACHIEVED
BY USE OF EXTERNAL FILTERS MOUNTED IN A COLOR WHEEL.

D. SIX-HUNDRED NANOAMPERES QUOTED IS DESIGN LIMIT OF PEAK
CURRENT IN US CAMERA. AUTOMATIC LIGHT CONTROL CIRCUIT IS USED
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TO VARY HIGH VOLTAGE ON PHOTOCATHODE AND PROVIDE NECESSARY

BURN RESISTANCE.

2. WE WOULD NOT OPPOSE OFFER OF FULL DOCUMENTATION ON CAMERA SYSTEM IF SUCH OFFER WOULD IN USDEL JUDGMENT ASSIST IN OBTAINING COCOM APPROVAL.

3. AS SUGGESTED PREVIOUSLY, THE COLOR TV CAMERA SYSTEM IN WHICH THE TUBE IS TO BE USED AND WHICH IS TO BE DEVELOPED BY THE SOVIETS SHOULD CONFORM TO THE SYSTEM USED IN THE APOLLO PROGRAM WHICH CONSISTS OF A FIELD SEQUENTIAL COLOR TELEVISION CAMERA, MANUALLY OPERATED LENS, REMOTE LENS ASSEMBLY, MOUNTING BRACKET, REMOTE ASSEMBLY CONTROL PANEL, MINI MONITOR AND CABLES. SPECIFICS FOR ALL BUT MINI MONITOR AND VIDICON FOLLOWS:

WEIGHT - LESS THAN 12.5 LBS.; OPERATING VOLTAGE - 28 PLUS OR MINUS 4 VDC; POWER CONSUMPTION - CAMERA AND MONITOR 28 WATTS OR LESS AT 28 VDC; ASPECT RATIO - 4:3 HORIZONTAL: VERTICAL; INTERFACE SCAN - POSITIVE 2:1; VERTICAL SCAN - NOMINAL 60 FIELDS/SECOND, 30 FRAMES/SECOND, 525 LINES/FRAME; HORIZONTAL SCAN - 15,734.624 HZ; VIDEO FORMAT - WHITE POSITIVE ACCORDING TO ELECTRICAL PERFORMANCE STANDARDS, MONOCHROME TELEVISION STUDIO FACILITIES QUOTE RS 170-DATED NOVEMBER 1957 UNQUOTE MODIFIED TO MEET COLOR RATES; VIDEO VOLTAGE LEVEL- SYNC TIP -0.75 PLUS OR MINUS 5 PERCENT VIDEO WHITE POSITIVE PLUS 2.75 PLUS OR MINUS 5 PERCENT. FOR 100 OHM TERMINATION: SYNC TIP -0.37 PLUS OR MINUS 0.1 V VIDEO WHITE POSITIVE 1.37 PLUS OR MINUS 0.1 V FOR 50 OHM TERMINATION; S/N - NONCOHERENT -35DB MIN, COHERENT -47 DB MIN AT 2 MHZ BANDWIDTH: FOR ALL SPECIFIED OPERATING CONDITIONS.

TOTAL LIGHT RANGE - 1 TO 10,000 FOOTLAMBERTS USING LENS IRIS AND ALC/AGC.

ALC/AGC RANGE - 1000:1 ANYWHERE WITHIN TOTAL RANGE - MIN S/N OF 35 DB AT 2 MHZ BANDWIDTH

STATIC RANGE - 32:1 - (10EIA LOGARITHMIC SHADES OF GRAY) .IN S/N 35 DB AT 2 MHZ BANDWIDTH
ALC/AGC MODES - TWO MODES, AVERAGE: USING 50 PERCENT SCENE LIGHTING AND MAINTAIN 32:1 STATIC RANGE, PEAK: USING .5
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PERCENT PEAK BRIGHT WITH BACKGROUND AND MAINTAIN 32:1 STATIC RANGE.

MTF (INPUT/OUTPUT FREQUENCY RESPONSE) - REFERENCE 50 TV LINES, 90 PERCENT RESPONSE AT 100 TV LINES, 70 PERCENT RESPONSE AT 200 TV LINES, 40 PERCENT RESPONSE AT 300 TV LINES.

LIMITING RESOLUTION - 360 TV LINES/VERTICAL HEIGHT AT 4.5

MHZ BANDPASS; APERTURE CORRECTION - ADJUSTABLE TO 8DB AT 250 TV LINES; VIDEO BANDPASS - 4.5 MHZV DYNAMIC FOCUS - EDGE RESOLUTION CORRECTED TO GREATER THAN 50 PERCENT CENTER RESOLUTION; GAMMA - GAMMA, MODIFIED ELECTRONICS TO 0.5

VERTICAL INTERVAL TEST SIGNALS - CONTAINED IN LINE 19 OF FIRST FIELD AND CONSISTING OF MODULATED STAIRCASE, SINE SQUARED PULSE, MULTIBURST PATTERN, AND WINDOW

LENS - MODIFIED ANGENIEUX; T NUMBER - T-5 TO T-50; F/NUMBER - F/4.4 TO F/44; ZOOM RANGE - 24 MM TO 150 MM (6:1); FOV - 9 TO 54 DEGREES DIAGONAL; MINIMUM FOCUS DISTANCE - 24 INCHES REMAINS IN FOCUS THROUGHOUT ZOOM RANGE WITHOUT ADJUSTMENT; MOUNT - SCREW THREAD, 1-INCH DIAMETER - 32 THREADS PER INCH; CAMERA CONTROLS - READILY ACCESSIBLE TO OPERATING CREWMAN - POSITIONED DOWN MARKED, AND LABELED WITH SUFFICIENT SIZE AND HIGH CONTRAST TO ALLOW READING AND OPERATING BY CREWMAN. A)/AGC MODE SWITCH - PEAK AND AVERAGE POSITIONS DESCRIBED HEREIN.

STANDBY/TRANSMIT SWITCH A 2 POSITIONS - TRANSMIT: COMPOSITE VIDEO TO ONBOARD MONITOR AND TRANSMITTER; STANDBY: COMPOSITE VIDEO TO ONBOARD MONITOR - SYNC PULSES TO TRANSMITTER;

LENS CONTROL - MANUAL ZOOM, FOCUS AND IRIS REMOTE CONTROL, REMOTE LENS - 2.5 LBS.

WEIGHT, CONTROL PANEL - 6.0 LBS.

FUNCTIONS - ALC, 4 POSITIONS FROM PEAK TO AVERAGE FOCUS, FROM 24 INCHES IN 18 SECONDS ZOOM, 6:1 RANGES IN 10 SECONDS CAMERA ON/OFF SWITCH; CONTROLS - MANUAL CONTROL AT CONTROL CONFIDENTIAL

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PANEL OR CONTROLLED DIGITALLY VIA TELEMETRY.

4. RE PARA 5 OF REF A POSSESSION OF VIDICON TUBE COULD ALLOW USSR GAIN KNOWLEDGE CONCERNING FIBER OPTICS CHARACTERISTICS, ASSEMBLY CHARACTERISTICS OF ELECTRON BOMBARD SILICON (EBS) TYPE VIDICONS, AND PERFORMANCE CHARACTERISTICS OF THE TUBES. NASA BELIEVES THAT EXTRACTION OF THIS INFORMATION COULD BE DONE ONLY WITH CONSIDERABLE EXPENSE AND EFFORT AND THAT REVERSE ENGINEERING FOR QUANTITY PRODUCTION OF TUBES NOT PRACTICAL.

5. REF FRENCH AND UKDEL QUESTIONS REF B, NUMBER OF TUBES PROPOSED FOR EXPORT NOT TO EXCEED 10. CAMERA TO BE USED FOR INTERIOR SHOTS ONLY IN CONFINED SPACE. URGENCY DUE TO LONG LEAD TIME REQUIRED TO COMPLETE CONSTRUCTION OF CAMERA

FOR FLIGHT ONLY SOME 15 MONTHS FROM NOW. RUSH

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